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Preventive medicine could be made into the moral equivalent of war. It is already so for a few people. A colleague of mine was recently translating a French paper on chemotherapy when he came upon the phrase 'tué par l'ennemi' in reference to a deceased pharmacologist. 'I suppose,' he said, 'that means that he died of an accidental infection.' I undeceived him; the enemy in this case had been the German nation; but his attitude was typical of medical scientists to-day. 'For we wrestle, not against flesh and blood, but against principalities, against powers, against the rulers of the darkness of this world.' St. Paul thought that the world was largely ruled by demons. We know better to-day, and we demand the general adoption of the scientific point of view because in its absence human effort is so largely devoted to conflicts with fellow-men, in which one, if not both, of the disputants must inevitably suffer. It is only in times of disaster that the average man devotes a moment's thought to his real enemies, 'the rulers of the darkness of this world' from bacteria to cyclones. Until humanity adopts the scientific point of view those enemies will not be conquered.

The Inequality of Man 1932

This quotation from the late JBS Haldane seems quaint today, but only because of the names of the teams. Pestilence, hunger, aging and death are still the real enemies of man. But a historical aberration of the last century or so has channeled human energies into "nations", and so long as the species remains so fragmented, conflict among these groups appears to be inevitable. It is especially disheartening that even the most liberal humanitarian thought today still invokes the archaicism of self-determination of a "people", nations like South Vietnam or Slovakia or <sup>Algeria or</sup> Israel (but why not Scotland, the Basques or the Navajo?) as the fundamental principle of geopolitical morality while giving only lip-service to the human rights of people one at a time regardless of their national affiliation.

Judging from recent history, however, nationalisms are self-perpetuating

diseases, and I do not see any easy way out. Nationalism will eventually disappear, and with it the violent conflict it generates, by one of the following routes.

1) Global war, followed by a world empire most likely dominated by a bystander. This may vindicate the Gaullian model of world politics. The world population will speak French -- all five millions of the scattered survivors.

2) Global disease, when a virus like rabies mutates to a form capable of easy airborne transmission. In tribute to Louis Pasteur, and because they all owe their lives to immunization with a French vaccine, the five million survivors (the Camerounians?) will continue to speak French.

We have no convenient term for the near-eradication of the species. (Decimation means, after all, the removal only of every tenth man.) Let us invent one, and call it milleniation.

Milleniation is a constant threat, consistently ignored by the experts we hire to reassure us about the status of world health. There are only a few precedents for it in human experience: The Black Death of medieval Europe comes close. There are abundant precedents in other species - the extermination of European grapes by phylloxera; and American chestnuts and Dutch elms by wilt fungi; the impact of myxomatosis on the Australian rabbit; hoof-and-mouth disease on British cattle, stem rusts on North American wheats; tuberculosis, measles, and smallpox on many insular human populations.

When the milleniating mutant appears in a virus, it will be helped along, during the early stages of its fulmination, by a humanitarian reluctance to slaughter and burn every known contact with the disease, the kind of measure that has sometimes stayed the spread of contagion in lower plants and animals.

The world system we are building seems designed to ensure the early

fruition of the millennial hazard. We are building a dense world population, much of it in clusters kept under the worst conditions of crowding, poor hygiene and malnutrition. The mutant virus, once started, will have little problem developing a large focus among people too ill-nourished to react vigorously with protective antibodies. On the other hand, jet transport will promptly disseminate the disease, quite unrecognizable during its long latent period, throughout the world. Its dissemination may even accompany the humanitarian practice of large-scale immunization of children against viruses, with vaccines derived from the tissues of dogs and of monkeys of dubious provenience and uncertain freedom from exotic disease.

To top it off, the intelligent construction of new viruses is one of the crowning achievements of modern biological research. Applied to positive human uses, this application of molecular biology promises the most effective, rational attack against a wide range of human ills. In our present context of global conflict, comparable effort will be applied to the knowing construction of milleniating strains of viruses for use in biological warfare.

The problem of large scale human aggression and conflict is then self-terminating. Man does not have quite as much power as he credits himself with when he sallies forth into battle to protect his tribe, nation, or "way of life". He cannot assure his own survival against the microbes who will succeed him as the Lords of Creation. <sup>41</sup> "Why are you so gloomy?" I will be asked. "Surely, in the face of the threat of common annihilation, the nations will reunite, will reorganize their efforts to join against their joint enemy, the rulers of darkness."

Perhaps so. Nuclear suicide has been clearly perceived, and if we have no right to rave with optimism, the acute crisis is no bleaker <sup>more bleak</sup> than it was twenty years ago. If by the laws of chance, the milleniating virus only arrives after another thousand years, we might be learning the important things about life just fast enough to make a fair contest of it by then.